BLACKBIRD PESTICIDE REGISTRATIONS AND REGISTRATION REQUIREMENTS

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Abstract: This paper discusses U.S. registrations and registration requirements for pesticide products used to control blackbirds, including the active ingredients Avitrol, DRC-1339 (Starlicide), methyl anthranilate, and polybutene. A pesticide product registered under Section 3 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) may be used in any state which also issues a registration for the product. A "special local needs" (SLN) product registered under Section 24(c) of FIFRA may only be used in the state that initially accepts its registration. SLN registrations are subsequently reviewed by the U.S. Environmental Protection Agency. This paper also briefly discusses pesticide devices as they relate to bird management.

Key words: Avitrol, blackbird, methyl anthranilate, polybutene, starlicide.

The primary pesticide law in the United States of America is the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (7 USC 136-136y). As defined in Section 2(u) of FIFRA, in relevant part, a "pesticide" is "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." Section 2(t) of FIFRA defines "pest" as "(1) any insect, rodent, nematode, fungus, weed, or (2) any other form of animal life or virus, bacteria, or other microorganism (except viruses, bacteria, or other microorganisms on or in living man or other living animals) which the Administrator declares to be a pest under Section 25(c)(1)."

Such declarations have been made for various types of icterid blackbirds which are claimed as target pests on the labels of registered pesticide products. These species include red-winged blackbirds (*Agelaius phoeniceus*), tri-colored blackbirds (*A. tricolor*), Brewer's blackbirds (*Euphagus cyanocephalus*), rusty blackbirds (*E. carolinus*), yellow-headed blackbirds (*Xanthocephalus xanthocephalus*), brown-headed cowbirds (*Molothrus ater*) common grackles (*Quiscalus quiscula*), boat-tailed grackles (*Q. major*), and great-tailed grackles (*Cassidix mexicanus*). If a pesticide is claimed to be effective against "blackbirds," with species not listed separately, the claim is considered to apply to the types of icterid blackbirds that have been declared to be pests.

Blackbirds are considered to be pests only when their activities are perceived as threatening to public health or the environment, with the latter category including damage to crops and other property. In other situations, blackbirds are treated as nontarget species to be protected from adverse effects of pesticides applied for the purpose of controlling non-avian pests. Thus, deliberate use of a registered insecticide product to kill blackbirds would be considered to be misuse, while use of a lethal avicide compound registered for the purpose of killing blackbirds would be legal, provided that none of the requirements on the product's label and no other relevant statutes or regulations were violated.

Section 12(b)(2)(G) of FIFRA makes it "unlawful for any person . . . to use any pesticide in a manner inconsistent with its labeling." This text is reflected in a statement that is required to appear on labels of registered pesticide products and gives rise to the expression "the label is the law." In addition to FIFRA, other statutes come into play when pesticides are used, especially when they are labeled for deliberate use to control birds.

PESTICIDE REGISTRATIONS AND REQUIREMENTS

FIFRA authorizes use of pesticide products in the following ways:

1. full federal registration under Section 3;
2. state-limited registration for "special local needs" (SLN) under Section 24(c);
3. experimental use permits under Section 5; and
4. emergency exemptions under Section 18.

The last 2 of these categories are temporary authorizations that are limited geographically by the scope of the experimental program or by the extent of the emergency pest control situation.

Pesticide products that are available from year to year for operational use typically are registered under

Section 3 or Section 24(c). Unless its label indicates that use is limited to certain states, a pesticide product registered under Section 3 may be used in any state where at least 1 site-and-pest combination listed on the label occurs, provided that the product also is registered in that state and that its use is not limited or prohibited by state, tribal, or local laws or regulations.

A pesticide product is registered under Section 3(c)(5) after the U. S. Environmental Protection Agency (USEPA) has concluded that (1) its composition is such as to warrant the proposed claims for it; (2) its labeling and other material required to be submitted comply with the requirements of this Act [FIFRA]; (3) it will perform its intended function without unreasonable adverse effects on the environment; and (4) when used in accordance with widespread and commonly recognized practice, it will not cause unreasonable adverse effects on the environment.

The expression "unreasonable adverse effects on the environment" is defined in Section 2(bb) of FIFRA as (1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under Section 408 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 346a). The Administrator shall consider the risks and benefits of public health pesticides separate from the risks and benefits of other pesticides. In weighing any regulatory action concerning a public health pesticide under this Act, the Administrator shall weigh any risks of the pesticide against the health risks such as the diseases transmitted by the vector to be controlled by the pesticide.

This means that USEPA is required to weigh the risks and benefits of proposed uses of pesticides and is required to use different criteria for public health pesticides than for pesticides used to combat more strictly economic problems.

To determine whether pesticides meet registration criteria as listed above and in Section 3(c)(5), USEPA requires submission of data regarding the chemical composition, toxicity, environmental fate, ecological effects, and, at times, the efficacy of the product. If the product is proposed for any applications to food or feed crops, USEPA also must determine whether and to what extent the pesticide might contaminate food or feed and whether to set tolerances for the pesticide chemical(s) in the product in the affected food and feed materials. Extensive residue chemistry data usually are required for tolerance evaluations, along with detailed toxicity studies pertaining to chronic oral exposure, oncogenicity, mutagenicity, and teratology. If USEPA is able to determine that the proposed use of the product could not result in toxicologically significant contamination of food or feed crops, USEPA may exempt a chemical from the requirement for a tolerance.

The data requirements for registering a new pesticide chemical, a new use of a registered pesticide chemical, and/or a new pesticide product are summarized in Part 158 of 40 CFR (2001). Information on specific testing methods can be found at the following USEPA site: www.epa.gov/opptsfrs/home/guidelin.htm.

Whether efficacy data are required to support registration of an avian pesticide depends chiefly upon whether the label proposed for the product claims effectiveness in situations in which birds can adversely impact public health. Birds may adversely impact public health by spreading disease directly or via their droppings and by causing human injuries or casualties, including those resulting from collisions with aircraft. Although many vertebrate pests of significance to public health feed in close proximity to where they "live," blackbirds often feed miles away from where they stage and roost. Due to the relative likelihood of human contact with birds and their droppings, blackbirds may be perceived as being of public health significance in staging and roosting areas but perhaps not where they feed in crops. This means that the proposed sites of application may affect whether submission of efficacy data is required to support claims that pesticide product controls blackbirds.

Even if a pesticide is not being used to control a pest of significance to public health, USEPA may require submission of efficacy data so as to gain a more precise understanding of benefits of the pesticide in situations in which the risks associated with a particular pesticide use pattern appear to be very high. USEPA also may require submission of efficacy data for products which inherently seem unlikely to work and for products for which patterns of user complaints have been received. In addition, USEPA may require submission of efficacy data for any pesticide at any time that the Agency feels justified in doing so. As the so-called "efficacy waiver" policy actually applies to the submission of efficacy data rather than to their generation, all registrants are expected to generate efficacy data to support the claims on the labels of their products.

Meeting data requirements for registering a pesticide chemical or product can be costly and time-consuming, with expense and research time increasing greatly if one or more tolerances are required. USEPA's reviewing of such studies is not a rapid process, either, with the Agency's slowness being due to the amount and complexity of data required to support each new use pattern and to competing demands on reviewers' time from matters pending for other pesticide compounds and products.

PESTICIDES REGISTERED FOR CONTROLLING BLACKBIRDS IN THE UNITED STATES

The subsections that follow identify the active ingredients that are registered under Section 3 and/or Section 24(c) of FIFRA for controlling blackbirds. These compounds include a toxicant (DRC-1339 or Starlicide), a toxicant/frightening agent (4-aminopyridine or Avitrol), and 2 repellents (methyl anthranilate and polybutene). These chemicals are registered for many bird control uses, but only those pertaining to blackbird management are discussed here. Pesticides claimed only to control or repel birds in general are not described here. Although the chemicals and formulations identified here have been accepted for registration, USEPA does not endorse or recommend use of particular pesticide products.

Readers should note that registered end-use pesticide products are either "unclassified" or classified as "Restricted Use Pesticides" which are to be used only by applicators with appropriate certifications or by persons under the "direct supervision" of such applicators. All end-use Avitrol and Compound DRC-1339/Starlicide products are classified as "Restricted Use Pesticides." The DRC-1339 products have additional qualifications for users stipulated on their labels. The term "Pre-harvest interval" (PHI) refers the minimum number of days that must elapse between the last treatment with the pesticide and the actual date of harvest. Unless otherwise cited, quoted passages in the following paragraphs are from current labels of registered products.

Methyl Anthranilate (MA)

This agent, which occurs naturally in Concord grapes and other fruits, is claimed to repel birds from treated crops, land areas, structures, and bodies of water.

Chemical names.—Methyl anthranilate, methyl-2-aminobenzoate.

Classification.—Unclassified.

Tolerances issues.—According to a newly issued regulation, "Residues of methyl anthranilate, a biochemical pesticide, are exempt from the requirement of a tolerance in or on all food commodities when used in accordance with good agricultural practices" (Andersen 2002). This blanket exemption will appear in Section 180.1143 of 40 CFR at a future printing. In currently available (September 2002) printed versions, that Section lists several crop-specific tolerance exemptions for methyl anthranilate.

Registration for controlling blackbirds, 26.4% active ingredient.—26.4% active ingredient (a.i.) concentrate to be applied by air at 0.28 lbs. a.i./acre "to limit feeding by blackbirds (*Agelaius phoeniceus* and *Euphagus cyanocephalus*) on ripening corn and sunflowers." For corn, material is to be applied 10 days before projected harvest date. For sunflowers, material is to be applied "when crop begins to ripen or birds begin to feed." For both of these uses, subsequent treatments are to be made at 5-day intervals; and the PHI is 5 days.

Registration for controlling blackbirds, 14.5% active ingredient.—14.5% a.i. concentrate to be diluted and sprayed using ground-based equipment or aerially (except in New York State) "to limit damage to ripening blueberries and grapes to limit damage caused by . . . common grackles (*Quiscalus quiscula*), . . . blackbirds (*Icteridae*) . . ." and various other bird species. Active ingredient is to be applied at 3.1-6.2 lbs./acre, with the amount of spray mixture needed to achieve those rates varying according to dilution ratio. Treatments are to be repeated "if significant bird damage begins to occur" and may continue "up to the day of harvest" (i.e., no PHI).

Registration for controlling blackbirds, 40% active ingredient.—40% a.i. concentrate to be (a) applied at 2.5 gal. of formulation (8.3 lbs. a.i.) per surface acre to "non-fishbearing bodies of water (tailing ponds, commercial or industrial water impoundments)," with sites being more greatly limited in New York State; (b) applied at 2.5 gal. of formulation (8.3 lbs. a.i.) per surface acre to landfills; and (c) applied as a fog in "indoor fogging applications (warehouses, hangers [sic], garages, assembly plants, etc.)" and in "outdoor fogging applications" to "repel nuisance birds" including "blackbirds," "cowbirds," and several other types "that have become a nuisance or health hazard in the target area." Indoor fogging applications are to be made at rates "not to exceed one (1) ounce" of undiluted product "per 10,000 cubic feet of space to be treated." Outdoor fogging applications are to be made at rates of 6-8 ounces of undiluted product per acre. Fogging applications may be made to "electrical substations, structures and buildings, trees and shrubs, airports and other open areas, turf (golf courses, lawns, sports fields, parks, etc.), lakes and ponds, harbors and boat docks (not for use in California)," and "fruit applications (cherries, blueberries, and grapes only . . . not for use in California)."

Polybutene

This agent is used as a tactile repellent intended to deter various types of birds from perching on treated substrates.

Chemical name.—Polybutene.

Classification.—Unclassified.

Tolerances issues.—There are no food or feed uses for this compound as a pesticide active ingredient. Therefore, there are no tolerances or needs for tolerances for polybutene as used for bird control. Exemptions from the requirements for tolerances are in place for use of polybutene as an inert ingredient in 2 highly

specialized types of insect control products (Section 180.1037 of 40 CFR).

Registration for controlling blackbirds, 80% active ingredient.—80% a.i. gel formulation claimed to "discourage Brewer's blackbirds, cowbirds, grackles," and certain other species "from roosting or perching on ledges, sills, roofs, peaks, cornices, and similar parts of municipal, industrial, and commercial buildings; homes; apartment and condominium complexes; bridges and overpasses; and similar structures."

Registration for controlling blackbirds, 49% active ingredient.—49% a.i. "Liquid" formulation claimed to "discourage Brewer's blackbirds, cowbirds, grackles," and certain other species "from roosting or perching on treated surfaces" including "interior use" on "beams, girders, struts, supports, and other places where birds can sit and roost" as well as "exterior use" on "trees, bushes, and vines."

Avitrol

This agent is lethal to birds that ingest it. Affected birds generally react with vocalizations, erratic flight, and other conspicuous behavior which may cause conspecifics to flee the immediate area so that the birds are dispersed with limited mortalities. Consequently, Avitrol is considered to be both an avian toxicant and frightening agent.

Chemical name.—4-aminopyridine.

Classification.—Avitrol end-use products are restricted use pesticides which can only be by certified applicators whose certifications cover use of such products.

Tolerances issues.—As indicated in Section 180.312 of 40 CFR, "A tolerance of 0.1 part per million is established for negligible residues of . . . 4-aminopyridine in or on the raw agricultural commodities corn fodder and forage, corn grain (including popcorn grain), fresh corn (including sweet corn kernels plus cob with husks removed), and sunflower seeds."

Registration for controlling blackbirds, 0.5% active ingredient, mixed grains.—0.5% a.i. treated "mixed grains" to be mixed with "untreated grain of the same composition as the Avitrol carrier" and applied to control red-winged blackbirds, yellow-headed blackbirds, rusty blackbirds, Brewer's blackbirds, grackles, cowbirds, and several other bird species from "structures, nesting, feeding, loafing, and roosting sites." The "recommended" dilution ratio is 1 part treated grains to at least 9 parts untreated grains. Prebaiting is recommend. (Prebaiting entails applying untreated grain similar to the intended bait materials prior to application of the toxic product, diluted with untreated bait particles in this case.) Use in New York State is subject to additional limitations. Under an SLN registration, this product also may be used in California in grape vineyards in which bait placements are confined to V-shape troughs.

Registration for controlling blackbirds, 1.0% active ingredient, Corn Chops.—1.0% a.i. treated "Corn Chops" to be mixed with "untreated grain of the same composition as the Avitrol carrier" and applied to control red-winged blackbirds, yellow-headed blackbirds, rusty blackbirds, Brewer's blackbirds, grackles, cowbirds, and another bird species from "feedlots, structures, nesting, roosting and feeding sites." The "recommended" dilution ratio is 1 part treated bait to at least 9 parts untreated material. Prebaiting is recommended.

Registration for controlling blackbirds, 0.5% active ingredient, Corn Chops.—0.5% a.i. treated "Corn Chops" to be mixed with "untreated grain of the same composition as the Avitrol carrier" and applied to control red-winged blackbirds, yellow-headed blackbirds, rusty blackbirds, Brewer's blackbirds, grackles, cowbirds, and two other bird species in "structures, feeding, nesting and roosting sites." The "recommended" dilution ratio is 1 part treated bait to at least 9 parts untreated material. Prebaiting is recommended.

Registration for controlling blackbirds, 0.03% active ingredient, FC Corn Chops.—0.03% a.i. treated "FC Corn Chops-99" and applied to control red-winged blackbirds, yellow-headed blackbirds, common grackles, cowbirds, and another bird species "that depredate ripening ears of field and sweet corn and ripening sunflower fields." As packaged, bait mixture is to contain treated particles diluted 1:99 with untreated particles. Bait is to be broadcast by air or ground equipment in "swaths 10 to 15 rows wide" with "30 to 35 rows between swaths" at a per-treatment rate of 3 pounds of bait per swath acre (and 1 pound of bait per field acre). Treatments are not to be made to the outermost 50 feet of any field. For corn, repeated treatments not to exceed 4 "per crop season" are permitted. For sunflowers, up to 5 treatments per season are permitted, as long as no portion of the field is treated at a cumulative application rate exceeding 0.0144 ounces of a.i. per acre. Successive treatments are to be made to areas not treated in either of the 2 most recent prior applications so that "the total material applied in a season is evenly distributed over the field."

DRC-1339 (Starlicide)

This chemical is an avian toxicant that is mixed with materials expected to be attractive to target birds to make lethal baits. To enhance bait acceptance and serve as a check against poisoning nontarget species, prebaiting and observation of areas to be treated generally are required before baits containing Starlicide are applied.

Chemical name.—3-chloro-p-toluidine hydrochloride, 3-chloro-4-methylbenzenamide hydrochloride, or 3-chloro-4-methylaniline hydrochloride.

Classification.—All DRC/Starlicide end-use products are classified as restricted use pesticides. The 98% a.i. concentrate products (see below) may only be used by certified applicators with additional limitations, such as "For use only by U.S. Department of Agriculture personnel trained in bird control or persons under their direct supervision." The 0.1% a.i. ready-to-use bait product may be used by any certified applicator with a current certification which covers use of such a product.

Tolerances issues.—As of September 2002, there were no established tolerances for 3-chloro-p-toluidine hydrochloride in any food or feed commodity. Consequently, the material may only be applied in ways that have been concluded not to constitute food or feed uses. For certain uses, crop destruction requirements and/or 365-day plant-back limitations are in place to protect food and feed crops from contamination.

Registration for controlling blackbirds, 98% active ingredient, unoccupied feedlots.—98% a.i. concentrate product for mixing baits to be used in unoccupied (no livestock present) "beef cattle feedlots" and "poultry, swine, and dairy cattle feedlots" to control Brewer's blackbirds, brown-headed cowbirds, common grackles, and red-winged blackbirds, among listed primary target species, and boat-tailed grackles, great-tailed grackles, tri-colored blackbirds, and yellow-headed blackbirds as ancillary target species when they occur "in mixed flocks with one or more of the" primary target species. Under an SLN registration for use in Kentucky and under a Tennessee-only SLN, additional bait materials may be used to control blackbird species claimed on the label for the Section 3 registered feedlots product.

Registration for controlling blackbirds, 98% active ingredient, staging areas.—for mixing baits to be used "at 'staging' areas associated with nighttime roosting sites," including "stubble fields, harvested hay fields, open grassy or bare-ground noncrop areas, roadsides, rooftops, industrial and commercial structures, and secured parking areas" to control boat-tailed grackles, brown-headed cowbirds, common grackles, great-tailed grackles, and red-winged blackbirds, among primary target species and Brewer's blackbirds, rusty blackbirds, tri-colored blackbirds, and yellow-headed blackbirds as ancillary target species when occurring "in mixed flocks with one or more of the" primary target species. Under an SLN registration for use in Kentucky, additional bait materials may be used to control blackbirds claimed for the staging-areas product registered under Section 3.

Registration for controlling blackbirds, 98% active ingredient, for use in North Dakota.—for mixing baits to be used under an SLN registration in North Dakota for the control of red-winged, yellow-headed and Brewer's blackbirds, starlings, brown-headed cowbirds, and common grackles at staging areas and decoy sunflower fields.

Registration for controlling blackbirds, 98% active ingredient, for use in South Dakota.—for mixing baits to be used under an SLN registration in South Dakota to control red-winged blackbirds, yellow-headed blackbirds, common grackles, Brewer's blackbirds, brown-headed cowbirds, and starlings "in nonharvested areas of ripening commercial and 'decoy' sunflower fields."

Registration for controlling blackbirds, 98% active ingredient, for use in Texas.—for mixing baits to be used under an SLN registration in Texas for the control of . . . roosting birds including . . . common grackles, great-tailed grackles, brown-headed cowbirds and red-winged blackbirds with alternate baits in staging areas associated with roosts. [Ellipses indicate where target species other than blackbirds are listed.]

Application rates and bait-mixing procedures for Starlicide vary considerably from product to product and are too complicated and too much subject to change to detail in this paper. Label directions on current accepted labels must be and followed.

During the reregistration process for Starlicide, USEPA stipulated that broadcast application rates may not exceed 0.1 lbs of a.i. per acre per treatment (USEPA 1995). This limitation will be reflected on labels for Starlicide products when they are reregistered.

PESTICIDE DEVICES FOR CONTROLLING BLACKBIRDS IN THE UNITED STATES

Section 2(h) of FIFRA defines "device" as any instrument or contrivance (other than a firearm) which is intended for trapping, destroying, repelling, or mitigating any pest or other form of plant or animal life (other than man and other than bacteria, virus, or other microorganism on or in living man or other living animals); but not including equipment used for the application of pesticides when sold separately therefrom.

Under FIFRA, devices are not registered in the manner that pesticide product are. However, devices are regulated in that they may not be misbranded. The establishments that produce them must be registered with USEPA, and producers of devices must file annual confidential reports of production with USEPA. When devices are misbranded, it is usually because their labels and other product literature bear statements that are

false or misleading – see Section 156.10(a)(5) of the 40 CFR – and/or because the establishment number is not shown on the product or its label.

In an interpretive rule (Legro 1976), USEPA stated that the types of bird control devices that would be regulated under FIFRA would include, but not be limited to, high frequency sound generators, carbide cannons, foils, and rotating devices.

Generally, USEPA has considered devices to be products which are claimed either to exert a nonchemical pest control effect or to combine or ignite nonpesticide chemicals to produce a physical effect claimed to result in pest control. This means that light-generating, sound-generating, and noise-generating products claiming to repel or otherwise control or mitigate bird damage would be considered devices.

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